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*William B Noll*

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Enclosed herewith is a check in the amount of \$3093 for the full payment of the maintenance fee(s) and any necessary surcharge on the following patents:

	1	2	3
Patent No. (1)	6,390.19 <del>6</del>		
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Patent Number: US006390191

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US006390191B1

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## Sections:

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- ✓ Claims

(12) **United States Patent**  
Melson et al.

(10) Patent No.: **US 6,390,191 B1**  
(45) Date of Patent: **May 21, 2002**

(54) **METHOD FOR STIMULATING  
HYDROCARBON PRODUCTION**

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(\*) Notice: Subject to any disclaimer, the term of this  
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(21) Appl. No.: 09/617,001

(22) Filed: **Jul. 14, 2000**

**Related U.S. Application Data**

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1999.

(51) Int. Cl.<sup>7</sup> ..... **E21B 28/00**

(52) U.S. Cl. .... **166/177.1; 166/177.6;  
166/66.4; 166/249**

(58) Field of Search ..... **166/177.1, 177.6,  
166/249, 66.4**

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

3,322,196 A • 5/1967 Bodine, Jr. .... 166/177.1  
3,583,677 A • 6/1971 Phillips ..... 259/1

4,280,558 A 7/1981 Bodine ..... 166/245  
4,343,356 A 8/1982 Riggs et al. .... 166/60  
4,417,621 A 11/1983 Medlin et al. .... 166/249  
4,437,518 A 3/1984 Williams ..... 166/248  
4,512,402 A • 4/1985 Kompanek et al. .... 166/249  
4,537,256 A 8/1985 Beard ..... 166/299  
4,788,467 A • 11/1988 Plambeck ..... 310/323  
5,109,922 A • 5/1992 Joseph ..... 166/65.1  
5,595,243 A 1/1997 Maki, Jr. et al. .... 166/177.2  
5,826,653 A 10/1998 Rynne et al. .... 166/245  
5,836,389 A 11/1998 Wagner et al. .... 166/249

\* cited by examiner

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(57) **ABSTRACT**

A system for stimulating the production of hydrocarbon containing substances, such as from oil and gas wells, by the use of a generally cylindrical, high energy producing transducer mechanism. The transducer comprises a series of aligned transducer elements, preferably formed of doped ceramic piezoelectric materials, encased in a housing maintained under controlled pressure by a pressure compensator to equalize the pressure within the housing to that of the surrounding strata containing the hydrocarbon substance. When energized, the respective transducer elements transmit a very narrow, horizontal beam of ultrasonic energy radiating omni directionally, preferably in a narrow band of about 2 to 3°, to thereby focus the energy horizontally for maximum penetration into the surrounding strata.

**9 Claims, 2 Drawing Sheets**

